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WHAT FORESTRY MEANS TO THE OHIO VALLEY⁽¹⁾

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From the standpoint of population, wealth, industries, commerce, agriculture, and natural resources, the Ohio River basin comprises one of the most important sections of the United States. To give you a true picture of our region, however, I must add that it is equally well known, among conservationists at least, for its distressing examples of excessive deforestation, serious soil erosion, land abandonment, uncontrolled water resources, and disastrous floods.

The Ohio Valley Improvement Association is concerned with the development and the future of this region. Similar interest should be felt by every good citizen, but unfortunately in many instances he does not have the knowledge of actual conditions necessary to an intelligent interest. Since the dissemination of facts is an important function of organizations such as yours, I consider it a distinct privilege to be invited to call your attention to some of the outstanding problems concerning forest resources and forest influences within the 200,000 square mile area comprising the Ohio River watershed. A large part of this territory lies within the central hardwood region served by the Central States Forest Experiment Station, which I represent. What I have to say applies equally to the Ozark region and to other portions of the Central States in the upper Mississippi and Missouri river basins.

I hope to be able to convince you of three things:

(1) That the restoration of forests and the conservative management of forest lands is vital to public welfare.

(2) That the conservation program now under way requires and deserves whole-hearted public support for its continuation and necessary expansion.

(3) That this conservation program, to be successful, must be based upon facts and knowledge which are not now available, and unless research keeps pace with the development of the work the whole enterprise is certain to encounter delays, mistakes, or even failure.

Conservation Problems

The old story of forest depletion, timber exhaustion, and declining forest industries is undoubtedly well known to most of you. Excessive clearing of steep slopes and lands unsuited for agriculture has led directly to soil erosion, farm land impoverishment, and subsequent abandonment in many instances. Deforestation has inevitably been followed by

(1) Paper read at the 41st annual convention of the Ohio Valley Improvement Association, Wheeling, W. Va., October 15-16, 1935.

uncontrolled run-off of precipitation, with streams alternating between flood and drought stages, and a steady decline of underground water supplies during critical periods. As a direct result of the past abuse of our lands and our waste of their resources, many portions of the Ohio Valley have serious problems to face because of declining industries and business, decadent communities, unemployment, and alarming tax delinquency with virtual local bankruptcy in certain sections. This is a situation that affects everyone - locally, regionally, and even nationally; it is a mortgage upon our future which must be redeemed.

Timber. The Central States, lying within or immediately adjacent to the Ohio Valley, use more timber and forest products than does any other region, yet only about 50% of this is produced locally. The rest must be purchased and imported from other parts of the country at a tremendous cost. Current tree growth in this region now equals only a little more than half the amount of wood products produced locally (or 25% of the total consumption), because our remaining second-growth forests are not being managed conservatively for sustained production, nor are they adequately protected from the excessive grazing of livestock, from repeated forest fires, or from continued exhaustive cutting. Yet with more than 70 million acres of present or potential forest lands in the central hardwood region - sick lands that are neither adapted to nor needed for agriculture - the opportunities for profitable timber production are very great. The many economic and social benefits - to labor, industry, land owners, and to the public - which will result from restoring the productivity of this vast forest area by sustained yield management are very apparent.

Soil and Water. In this region, as in many others, a protective as well as a productive forest cover for non-agricultural lands is essential. The Ohio and its tributaries comprise one of the most important watersheds in the United States. On the rolling and hilly lands of the Ohio Valley uncontrolled erosion and run-off of water lead to streamflow and water conservation problems that are especially critical. Idle, barren, deforested lands are usually severely eroded. Lacking a protective cover of vegetation and leaf litter, the rapid run-off of water carries the top soil with it, and the area becomes further impoverished. Stream channels, reservoirs, and other engineering works become filled with eroded soil. Because of rapid run-off, there is little absorption or storage of water in the soil, underground waters are not replenished, the water table is lowered, wells and springs go dry at critical times, and water supplies become seriously reduced. At the same time, streamflow fluctuates rapidly between high and low stages, causes tremendous damage from frequent floods, and endangers navigation. Engineering problems of stream regulation, flood prevention, and water conservation become more difficult and costly to solve because of our past treatment of the land surface of the watersheds. It is high time that agriculturists, engineers, and foresters coordinate their efforts for conservative land use. When those areas adapted to agriculture are properly cultivated with due consideration for soil conservation, and when all non-agricultural lands are protected and made productive by thrifty forests properly managed, the engineer's problems of streamflow control and water conservation will be greatly simplified, and the tremendous cost of their solution will be greatly lessened. The tax-payer should be interested.

The erosion of severely gullied lands is very noticeable, but the average citizen does not appreciate the losses of soil and water that occur constantly from unprotected slopes subject to the less apparent but very destructive sheet erosion. Neither does he appreciate the protective influences of different kinds of cover. Data collected by the Soil Erosion Experiment Station near Zanesville, Ohio, following the very heavy rainfall that occurred early in August of this year, are very enlightening. The following summarizes portions of an article that appeared in the Columbus Dispatch on Sunday, August 11:

"It is expected that analysis will show a loss in excess of 20 tons of soil per acre for cultivated fields Only 61% of the rain falling upon the experimental plot in grass was lost Wheat stubble assists in holding water on the farm land, a loss of 65% being measured for this rain The plot in continuous corn lost 82% An experimental plot of badly eroded land lost 87% of the water falling on it during the recent storm The plot which had practically all vegetation removed lost 96% The woods plot has had little water loss and no soil loss since its establishment in October, 1933. Less than 1% of approximately 50 inches of rainfall on this plot has been lost in the form of run-off. This is a contrast to an average annual water loss of 25% from experimental plots planted to corn."

In further explanation of the run-off from lands with different types of cover, Mr. J. M. Snyder, Superintendent of the Soil Erosion Station, wrote me as follows: "With regard to the rains of August 7 and 10, 1935, these figures have not all been compiled but I can give you a percentage of run-off that occurred on our cultivated watershed, pasture watershed, and the woods areas. On August 7 we had a rain of 2.63 inches, occurring in about eight hours. The percentage of run-off from the cultivated watershed was 54%, from the pasture watershed 37%, and from the woods area 1.8%. On August 10 we had a rather intense rain when 1.5 inches fell in twenty minutes, the first inch of rain coming in ten minutes. On the same plots mentioned above, the losses were 47%, 28%, and 2.8%, respectively."

These data conform closely to the results of the work of Dr. John T. Auten of our Station, in his study of the porosity and water absorptive capacity of the soils under forest cover compared with adjacent cleared lands. In spite of similar evidence available in all parts of the country where erosion and run-off studies are being conducted, there are persons who still doubt that forests are of much importance in helping to solve erosion and streamflow problems!

Recreation and Wild Life. Devastated lands and intermittent streams do not contribute to the conservation of fish, game and wild life, nor to the development of outdoor recreation facilities. Game requires a suitable habitat with adequate shelter and food; fish cannot thrive in muddy, polluted waters. The public seeking an outdoor playground is not attracted to an impoverished region lacking in forest and water resources. Their development for recreational use in certain sections contributes directly to the solution of an important social problem - how to spend our leisure time - and adds greatly to regional wealth, increased business and employment. In many parts of the country, providing outdoor recreation

has become the leading business, and there is a demand for it everywhere. This is but one more of the many phases of land use that might be mentioned in which forestry has important contributions to make.

There need be no conflict between the use of forests for timber production, for watershed protection, for recreational use, and for other purposes. Under carefully planned and skillfully applied multiple-use management, areas may be selected and developed for any or all of these services to the extent that they are needed locally. That this is so has been convincingly demonstrated on a large scale in the management of the National Forests by the U. S. Forest Service, and by other agencies with similar land use policies.

The Conservation Program

Within recent years we have seen the beginning of a great expansion in the nation-wide program of conservation, designed to restore and perpetuate the essentials of basic national wealth. This has brought to the Ohio Valley a great increase in effort to conserve forests and the resources of timber, water, soil, and wild life which forests produce or protect. Wilderness and non-agricultural areas are being acquired for public forests, parks, game refuges, and for other purposes in the public interest. Conservancy districts are being developed within important river basins. New units of National Forests are being acquired in all of the Central States. Civilian Conservation Corps camps have been established throughout the region to undertake necessary and constructive work under the direction of the U. S. Forest Service and other federal and state conservation organizations. The Soil Conservation Service of the Department of Agriculture is at work to remedy the serious erosion problem on the farm lands of this region. Both public and private agencies are cooperating to end forest devastation of privately-owned woodlands, and to bring about sustained timber production and operation, in contrast to the old "cut out and get out" practices which led to impoverishment and land abandonment in so many places. These and other projects now under way indicate that the Nation is at last awakening to the necessity for conservation of natural resources.

The Need for More Research

This sudden expansion of conservation work, in a region where many agencies are now undertaking new projects on a large scale for the first time, carries with it a very greatly increased demand for knowledge and information of all kinds. It is essential that those responsible for projects know the facts of the situation with which they are dealing, the best methods to use, and the results to be expected. Otherwise, costly mistakes or delays are inevitable, and in some instances they may even prove fatal to the enterprise.

In this region there is a generally acknowledged lack of information necessary to the successful establishment, protection, and management of forests. The various factors of forest influences are only partly understood. It is most unfortunate that a comprehensive program of forest research could not have preceded by several years the present expansion of forest land management in the Central States. Even now the forest research program is lagging seriously, and there appears to be little opportunity

to correct this situation as long as a large part of the research work is necessarily continued as temporary projects financed by emergency funds of uncertain duration. Research requires the best efforts of well-trained specialists, working under carefully laid plans with definite objectives and freedom from unnecessary restrictions or interruptions; it cannot be carried on effectively as emergency work with untrained personnel, with sudden starts and stops, with no continuity and no assurance of permanency. In the failure to provide for an increase in research on a scale comparable to other lines of forestry work, a critical situation already exists. Those in charge of various projects are calling for information that is not now available, yet they must have it if their work is to be carried on successfully. The immediate expansion of forest research in the Central States on a sound, permanent basis is highly imperative.

In conclusion, it may be said that an encouraging start has been made in this region to correct the serious land abuses of the past, and to restore the replaceable natural resources that are so essential to future prosperity. However, it should be realized that this work has only begun, and if the necessary objectives are to be achieved it must be allowed to progress steadily, without set-backs, for many years. Weak parts of the program must be strengthened, conflicting authority and duplication of effort must be eliminated, and the various phases of land utilization must be efficiently coordinated. To assure the success of this movement, every good citizen should become intelligently interested, and should give his full support to it. Self-interest, as well as concern for his country, should persuade him to do this. It is a sound investment in America's future.

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